This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.
As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.

WEST Search History

Hide Items | Restore | Clear | Cancel

DATE: Tuesday, November 02, 2004

Hide?	Set Name	Query	Hit Count
	DB=USPT; PLUR=YES; OP=OR		
☐	L20	L18 and (map or mapping)	0
☐	L19	L18 and render$ and (map or mapping)	0
☐	L18	L15 and microscale	1
☐	L17	L15 and micro$ and macro$	1
☐	L16	L15 and microscal$ and macroscal$	0
☐	L15	l13 and reflect$6 same point$1	158
☐	L14	L13 and reflect$6 same point$1 and transparent and (map or mapping) and (move or moving)	25
☐	L13	345/426.ccls.	438
☐	L12	L11 and map$	4
☐	L11	macrostructure and microstructure and reflect$4 same point$1	13
☐	L10	macro$ and micro$ and reflect$4 same point$1	2311
☐	L9	L6 and (plane or planar) and axis and (move or moving)	31
☐	L8	L7 and semitransparent	1
☐	L7	L6 and(plane or planar) and axis	39
☐	L6	reflection same point$1 and map and elongat$ and continuous same image	48
☐	L5	reflection same point$1 and map and elongat$ and continous same image	0
☐	L4	L3 and elongat$	6
☐	L3	L2 and map$	20
☐	L2	transparent same plane and reflection same point same map$4	20
☐	L1	transparent same plane and reflection same point same map$4 and elongat$3 and continous	0

END OF SEARCH HISTORY

PORTAL
US Patent & Trademark Office

Subscribe (Full Service) Register (Limited Service, Free) Login

Search: The ACM Digital Library The Guide

+planar +semitransparent reflection point SEARCH

THE ACM DIGITAL LIBRARY

Feedback Report a problem Satisfaction survey

Terms used **planar semitransparent reflection point** Found **23** of **144,254**

Sort results by relevance

Display results expanded form

Save results to a Binder

Search Tips

Open results in a new window

Try an Advanced Search

Try this search in The ACM Guide

Results 1 - 20 of 23 Result page: **1** 2 next

Relevance scale

1 Three-dimensional medical imaging: algorithms and computer systems

M. R. Stytz, G. Frieder, O. Frieder

December 1991 **ACM Computing Surveys (CSUR)**, Volume 23 Issue 4

Full text available: pdf(7.38 MB) Additional Information: full citation, references, citings, index terms, review

Keywords: Computer graphics, medical imaging, surface rendering, three-dimensional imaging, volume rendering

2 Reflectance and texture of real-world surfaces

Kristin J. Dana, Bram van Ginneken, Shree K. Nayar, Jan J. Koenderink

January 1999 **ACM Transactions on Graphics (TOG)**, Volume 18 Issue 1

Full text available: pdf(6.94 MB) Additional Information: full citation, abstract, references, citings, index terms

In this work, we investigate the visual appearance of real-world surfaces and the dependence of appearance on the geometry of imaging conditions. We discuss a new texture representation called the BTF (bidirectional texture function) which captures the variation in texture with illumination and viewing direction. We present a BTF database with image textures from over 60 different samples, each observed with over 200 different combinations of viewing and illumination directions. We describe ...

3 Texture-based visibility for efficient lighting simulation

Cyril Soler, F. X. Sillion

October 2000 **ACM Transactions on Graphics (TOG)**, Volume 19 Issue 4

Full text available: pdf(1.71 MB) Additional Information: full citation, abstract, references, citings, index terms

Lighting simulations using hierarchical radiosity with clustering can be very slow when the computation of fine and artifact-free shadows is needed. To avoid the high cost of mesh refinement associated with fast variations of visibility across receivers, we propose a new hierarchical algorithm in which partial visibility maps can be computed on the fly, using a convolution technique for emitter-receiver configurations where complex shadows are produced. Other configurations still rely on m ...

Keywords: convolution, global illumination, hierarchical radiosity, texture-based visibility

4 Shadow volume reconstruction from depth maps
Michael D. McCool
January 2000 **ACM Transactions on Graphics (TOG)**, Volume 19 Issue 1

Full text available: pdf(385.75 KB) Additional Information: full citation, abstract, references, citings, index terms

Current graphics hardware can be used to generate shadows using either the shadow volume or shadow map techniques. However, the shadow volume technique requires access to a representation of the scence as a polygonal model, and handling the near plane clip correctly and efficiently is difficult; conversely, accurate shadow maps require high-precision texture map data representations, but these are not widely supported. We present a hybird of the shadow map and shadow volume appr ...

Keywords: hardware accelerated image synthesis, illumination, image processing, shadows

5 Measuring bidirectional texture reflectance with a kaleidoscope
Jefferson Y. Han, Ken Perlin
July 2003 **ACM Transactions on Graphics (TOG)**, Volume 22 Issue 3

Full text available: pdf(23.88 MB) Additional Information: full citation, abstract, references, citings, index terms

We describe a new technique for measuring the bidirectional texture function (BTF) of a surface that requires no mechanical movement, can measure surfaces *in situ* under arbitrary lighting conditions, and can be made small, portable and inexpensive. The enabling innovation is the use of a tapered kaleidoscope, which allows a camera to view the same surface sample simultaneously from many directions. Similarly, the surface can be simultaneously illuminated from many directions, using only a ...

Keywords: BRDF, BTF, image-based rendering, realistic image synthesis, reflection models

6 Efficient ray tracing of volume data
Marc Levoy
July 1990 **ACM Transactions on Graphics (TOG)**, Volume 9 Issue 3

Full text available: pdf(3.30 MB) Additional Information: full citation, abstract, references, citings, index terms, review

Volume rendering is a technique for visualizing sampled scalar or vector fields of three spatial dimensions without fitting geometric primitives to the data. A subset of these techniques generates images by computing 2-D projections of a colored semitransparent volume, where the color and opacity at each point are derived from the data using local operators. Since all voxels participate in the generation of each image, rendering time grows linearly with the size of the data ...

7 Interactive shadows
Kenneth P. Herndon, Robert C. Zeleznik, Daniel C. Robbins, D. Brookshire Conner, Scott S. Snibbe, Andries van Dam
December 1992 **Proceedings of the 5th annual ACM symposium on User interface software and technology**

Full text available: pdf(1.27 MB) Additional Information: full citation, abstract, references, citings, index terms

It is often difficult in computer graphics applications to understand spatial relationships

between objects in a 3D scene or effect changes to those objects without specialized visualization and manipulation techniques. We present a set of three-dimensional tools (widgets) called "shadows" that not only provide valuable perceptual cues about the spatial relationships between objects, but also provide a direct manipulation interface to constrained transformation techniques. These ...

Keywords: 3D widgets, direct manipulation, interactive systems

8 The VolumePro real-time ray-casting system

Hanspeter Pfister, Jan Hardenbergh, Jim Knittel, Hugh Lauer, Larry Seiler

July 1999 **Proceedings of the 26th annual conference on Computer graphics and interactive techniques**

Full text available: pdf(2.11 MB) Additional Information: full citation, references, citings, index terms

Keywords: graphics hardware, hardware systems, rendering hardware, rendering systems, volume rendering

9 Surface splatting

Matthias Zwicker, Hanspeter Pfister, Jeroen van Baar, Markus Gross

August 2001 **Proceedings of the 28th annual conference on Computer graphics and interactive techniques**

Full text available: pdf(5.27 MB) Additional Information: full citation, abstract, references, citings, index terms

Modern laser range and optical scanners need rendering techniques that can handle millions of points with high resolution textures. This paper describes a point rendering and texture filtering technique called *surface splatting* which directly renders opaque and transparent surfaces from point clouds without connectivity. It is based on a novel screen space formulation of the Elliptical Weighted Average (EWA) filter. Our rigorous mathematical analysis extends the texture resampling fram ...

Keywords: antialiasing, frame buffer algorithms, image-based rendering, rendering systems, texture mapping

10 Interactive manipulation and display of surfaces in four dimensions

David Banks

June 1992 **Proceedings of the 1992 symposium on Interactive 3D graphics**

Full text available: pdf(1.41 MB) Additional Information: full citation, references, citings, index terms

11 Graphics is fun: Graphics gems revisited: fast and physically-based rendering of gemstones

Stephane Guy, Cyril Soler

August 2004 **ACM Transactions on Graphics (TOG)**, Volume 23 Issue 3

Full text available: pdf(2.08 MB) Additional Information: full citation, abstract, references

We present an algorithm for rendering faceted colored gemstones in real time, using graphics hardware. Beyond the technical challenge of handling the complex behavior of light in such objects, a real time high quality rendering of gemstones has direct applications in the field of jewelry prototyping, which has now become a standard practice for replacing

tedious (and less interactive) wax carving methods. Our solution is based on a number of controlled approximations of the physical phenomena in ...

Keywords: Crystal optics, Hardware-based rendering, real time

12 Session P1: medical visualization: Integration of measurement tools in medical 3d visualizations

Bernhard Preim, Christian Tietjen, Wolf Spindler, Heinz Otto Peitgen
October 2002 **Proceedings of the conference on Visualization '02**

Full text available: pdf(7.88 MB) Additional Information: full citation, abstract, references, index terms

We discuss 3d interaction techniques for the quantitative analysis of spatial relations in medical visualizations. We describe the design and implementation of measurement tools to measure distances, angles and volumes in 3d visualizations. The visualization of measurement tools as recognizable 3d objects and a 3d interaction, which is both intuitive and precise, determines the usability of such facilities. Measurements may be carried out in 2d visualizations of the original radiological data an ...

Keywords: computer-assisted surgery, interaction techniques, medical visualization, quantitative analysis

13 Optimal surface reconstruction from planar contours

H. Fuchs, Z. M. Kedem, S. P. Uselton
October 1977 **Communications of the ACM**, Volume 20 Issue 10

Full text available: pdf(1.07 MB) Additional Information: full citation, abstract, references, citings

In many scientific and technical endeavors, a three-dimensional solid must be reconstructed from serial sections, either to aid in the comprehension of the object's structure or to facilitate its automatic manipulation and analysis. This paper presents a general solution to the problem of constructing a surface over a set of cross-sectional contours. This surface, to be composed of triangular tiles, is constructed by separately determining an optimal surface between each pair of consecutive ...

Keywords: continuous tone displays, contour data, minimum cost paths, serial sections, surface reconstruction, three-dimensional computer graphics

14 Billboard clouds for extreme model simplification

Xavier Décoret, Frédo Durand, François X. Sillion, Julie Dorsey
July 2003 **ACM Transactions on Graphics (TOG)**, Volume 22 Issue 3

Full text available: pdf(2.52 MB) Additional Information: full citation, abstract, references, index terms

We introduce *billboard clouds* -- a new approach for extreme simplification in the context of real-time rendering. 3D models are simplified onto a set of planes with texture and transparency maps. We present an optimization approach to build a billboard cloud given a geometric error threshold. After computing an appropriate density function in plane space, a greedy approach is used to select suitable representative planes. A good surface approximation is ensured by favoring planes that are ...

Keywords: LOD, billboard, error-driven simplification, image-based rendering, model simplification, real-time rendering

15 Interactive volume on standard PC graphics hardware using multi-textures and multi-

stage rasterization
C. Rezk-Salama, K. Engel, M. Bauer, G. Greiner, T. Ertl
August 2000 **Proceedings of the ACM SIGGRAPH/EUROGRAPHICS workshop on Graphics hardware**

Full text available: pdf(1.56 MB) Additional Information: full citation, abstract, references, citings, index terms

Interactive direct volume rendering has yet been restricted to high-end graphics workstations and special-purpose hardware, due to the large amount of trilinear interpolations, that are necessary to obtain high image quality. Implementations that use the 2D-texture capabilities of standard PC hardware, usually render object-aligned slices in order to substitute trilinear by bilinear interpolation. However the resulting images often contain visual artifacts caused by the lack of spatial in ...

Keywords: PC hardware, multi-textures, rasterization, volume rendering

16 View-dependent displacement mapping
Lifeng Wang, Xi Wang, Xin Tong, Stephen Lin, Shimin Hu, Baining Guo, Heung-Yeung Shum
July 2003 **ACM Transactions on Graphics (TOG)**, Volume 22 Issue 3

Full text available: pdf(8.18 MB) Additional Information: full citation, abstract, references, index terms

Significant visual effects arise from surface mesostructure, such as fine-scale shadowing, occlusion and silhouettes. To efficiently render its detailed appearance, we introduce a technique called view-dependent displacement mapping (VDM) that models surface displacements along the viewing direction. Unlike traditional displacement mapping, VDM allows for efficient rendering of self-shadows, occlusions and silhouettes without increasing the complexity of the underlying surface mesh. VDM is based ...

Keywords: displacement maps, hardware rendering, mesostructure, reflectance and shading models

17 An enhanced treatment of hidden lines
Tomihisa Kamada, Satoru Kawai
October 1987 **ACM Transactions on Graphics (TOG)**, Volume 6 Issue 4

Full text available: pdf(930.15 KB) Additional Information: full citation, abstract, references, citings, index terms

A new display scheme is presented in which three-dimensional objects are represented with a much higher degree of user control of the line-drawing format than those in conventional schemes. In this scheme, the attribute of a line is determined not at the time of definition but after the viewing transformation has been applied, taking the shielding environment of the line into consideration. The essential difference between our scheme and conventional hidden-line removal/indication lies in t ...

18 Session 8: miscellaneous topics: An evaluation of methods for linking 3D views
Matthew Plumlee, Colin Ware
April 2003 **Proceedings of the 2003 symposium on Interactive 3D graphics**

Full text available: pdf(3.73 MB) Additional Information: full citation, abstract, references

It is common for 3D visualization systems to provide multiple points of view to a user, but there have been many solutions to the problem of linking these views so that users can understand the spatial relationships between them. Toward developing guidelines for view-linking devices, we have carried out two experiments that compare the utility of three different classes of linking devices: a directional proxy, tethers from one view to another, and a track-up map coupling. The task we apply them ...

Keywords: frames of reference, interaction design, multi-perspective identification task, multiple windows

19 Shadows: Rendering fake soft shadows with smoothies

Eric Chan, Frédo Durand
June 2003 **Proceedings of the 14th Eurographics workshop on Rendering**

Full text available: pdf(3.03 MB) Additional Information: full citation, abstract, references, citings, index terms

We present a new method for real-time rendering of shadows in dynamic scenes. Our approach builds on the shadow map algorithm by attaching geometric primitives that we call "smoothies" to the objects' silhouettes. The smoothies give rise to fake shadows that appear qualitatively like soft shadows, without the cost of densely sampling an area light source. The soft shadow edges hide objectionable aliasing artifacts that are noticeable with ordinary shadow maps. Our algorithm computes shadows effi ...

Keywords: programmable graphics hardware, projective texture mapping, soft shadow algorithms

20 Session 3: light: Opacity light fields: interactive rendering of surface light fields with view-dependent opacity

Daniel Vlasic, Hanspeter Pfister, Sergey Molinov, Radek Grzeszczuk, Wojciech Matusik
April 2003 **Proceedings of the 2003 symposium on Interactive 3D graphics**

Full text available: pdf(4.60 MB) Additional Information: full citation, abstract, references, index terms

We present new hardware-accelerated techniques for rendering surface light fields with opacity hulls that allow for interactive visualization of objects that have complex reflectance properties and elaborate geometrical details. The opacity hull is a shape enclosing the object with view-dependent opacity parameterized onto that shape. We call the combination of opacity hulls and surface light fields the *opacity light field*. Opacity light fields are ideally suited for rendering of the visu ...

Keywords: 3D photography, image-based rendering

Results 1 - 20 of 23 Result page: **1** 2 next

The ACM Portal is published by the Association for Computing Machinery. Copyright © 2004 ACM, Inc.
Terms of Usage Privacy Policy Code of Ethics Contact Us

Useful downloads: Adobe Acrobat QuickTime Windows Media Player Real Player